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UDC: 621.372.061

KALNIBOLOTSKIY, Yu. M., TABARNYY, V. G., SHEVELENKO, Zh. Sh.

"Component Degeneration in Analysis of Electronic Circuits by Means of Equations of Variables of State"

Kiev, Radioelektronika, Vol 15, No 7, Jul 72, pp 911-914

Abstract: The authors consider the structural properties of electronic circuits which prevent the occurrence of component degeneration in the process of deriving the equations of variables of state.

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1/2 006 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--A MOTOR SHIP IS TAKING THE ELEVATOR -U-

AUTHOR--SHEVELEV, A.

COUNTRY OF INFO--USSR

SOURCE--GUDOK, JULY 29, 1970, P 4, COLS 1-3

DATE PUBLISHED--29JUL70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--HYDROELECTRIC POWER PLANT, RIVER, SEA LEVEL, INLAND WATERWAY TRANSPORTATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0556 STEP NO--UR/9002/70/000/000/0004/0004

CIRC ACCESSION NO--AN0122677

UNCLASSIFIED

2/2 006 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AN0122677
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DESCRIBES THE NEW TYPE LOCK WHICH IS BEING CONSTRUCTED AT THE SITE OF THE KRASNOYARSK HYDROELECTRIC PLANT. IT EMPLOYS THE PRINCIPLE OF INCLINED ELEVATOR AND ROUND HOUSE. THE LOCK WILL CONSISTS OF AN 8,000 TON, SELF PROPELLED, WATER CHAMBER CAPABLE OF LIFTING A MOTOR SHIP AT THE RATE OF 60 METERS PER MINUTE AND LOWERING IT AT THE RATE OF 80 METERS PERMINUTE. THE DURATION OF A COMPLETE CYCLE WILL TAKE ONE HOUR AND A HALF. THE TOTAL ANNAUL HANDLING CAPACITY OF THE LOCK IS EXPECTED TO BE OVER 2,000,000 TONS.

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APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R002202920013-0"

USSR UDC 612.017.1:001.1

SHEVELEV, A. S., Smolensk Medical Institute

"Some Problems of Modern Immunology"

Moscow, Zhurnal Obshchey Biologii, Vol 33, No 2, Mar/Apr 72, pp 147-156

Abstract: Immunology is beset by many new terms; some such as "immunological competence" are beneficial, while others are superfluous. New facts have changed the understanding of phenomena, making some older terms such as "immunity" and "immunological tolerance" uncertain of meaning. New terms are chosen for long understood phenomena to show the greater understanding precipitated by these new facts. "Immunological memory," for example, suggests its relation to biological memory.

Infection immunology seeks to stimulate immunity, non-infection, to reduce immunological reactivity to transplants, etc. Since infection immunology problems are generally of an applied nature, non-infection immunology is the current leader in the development of immunity theory.

Tolerance is the process of stimulating immunological passivity to a specific antigen while maintaining usual reactivity to all other antigens. Tolerance

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SHEVELEV, A. S., Zhurnal Obshchey Biologii, Vol 33, No 2, Mar/Apr 72, pp 147-156

is often either temporary or only partially effective. Its characteristics are the same for both embryonic and fully grown syngenetic recipients, being more effective as the genetic similarities between donor and recipient increase. Dosage of extremely pure antigen, too small to stimulate immunity, is most effective. This and other data indicate that the mechanism of tolerance is the acquisition of a new property by the cells in the immunity system, rather than the selective cell destruction proposed by the clone-selection hypothesis. Immunity and tolerance should be seen as two different immunological reactions to the same antigen; first contact with the antigen results in the formation of either positive or negative immunological memory. The type of memory will depend on size, solubility, purity, and frequency of the dose, degree of syngenesis, maturity of immunity system, etc. Depending on various conditions, second contact will produce either an immunity reaction (positive) or tolerance (negative). Autoimmunity results from the destruction of the organism's natural tolerance to its own antigens. The study of autoantigens and autoantibodies has not led to a satisfactory explanation for the pathogenesis of autoimmunity illnesses. Acquired tolerance may be homeostatic in that it can protect the organism

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SHEVELEV, A. S., Zhurnal Obshchey Biologii, Vol 33, No 2, Mar/Apr 72, pp 147-156

from forming undesirable antibodies, thus preventing an autoimmunity reaction (Crowle, 1966).

Immunology, as a science which studies the homeostatic potential of organisms, must deal with haptenic and non-antigenic hypersensitivity and its attenuation.

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Acc. Nr: AP0036824 Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, 1970, Nr 1, pp 95-98

AUTOINFECTION IN HOMOLOGOUS DISEASE IN HYBRID MICE

Shevelev, A. S.; Fedosov, Ye. A.; Kirvel', M. M.

A regular autoinfection caused by bacteria of the normal intestinal microflora was seen at the late stages of homologous disease developing as a result of reaction of «the transplant against the host» in hybrid mice. Homologous disease was induced by intravenous injection to nonirradiated hybrids (CBA×C57BL/6/F_1), weighing 15 to 18 g, of live parent cells of the spleen obtained from mice C57BL/6. The dose was 110—120 million cells. The animals were sacrificed at various periods after the injection of parent cells; blood, mesenteric lymph nodes, liver and spleen samples were planted on culture media. Bacterial cultures from the organs and blood proved to be positive only in 6% of control intact hybrids. In experimental hybrids killed 5, 10, 15, 25 and 30 days after the transplantation the percentage of positive cultures constituted correspondingly 8, 12, 56, 60 and 72. Of the cultures isolated 87.7% were E. coli, 11.5% — E. paracoli, and 1.8% — were various species of Proteus.

D.M.

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REEL/FRAME
19721741

USSR

UDC: 681.327

SHEVELEV, A. Ye., ARKHOVSKIY, V. F.

"Signal-Brightness Converter of Image Display Device"

Novyye Beskontaktn. Elektron. Ustroystva. Ch. 2 [New Contactless Electronic Devices. Part II -- Collection of Works], Moscow, 1970, pp 210-212 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 10B262, by T. R.)

Translation: It is noted that when various problems are solved by digital computer, complex functional relationships of three variables must be displayed. These problems include the following: cross section of a heterogeneous body, graphs of distributions as functions of a new parameter (for example, time or temperature), nonlinear surfaces, etc. In these cases, scanning by cross sections or multiple imposition of images (cone-image type) are ineffective. The most successful method is the brightness-modulation method. In the transmission of data from the computer to the "modulator," the cathode ray tube of the device contains two units: a digital-analog converter and an interrupter-modulator. The principal requirements on these units are determined. Three illustrations.
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AA0040761 S Shevelev, G.P.

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-76.

241094 CHROMATOGRAPH for gas impurities analysis, consisting of the enrichment column unit; measuring unit with a recording instrument; thermal conduction detector; recording potentiometer and a power pack with a control unit. The enrichment column unit comprises an electric motor with a drive electric heater; chromatographic column; a liquid nitrogen tank. This unit serves to enrich and separate the analysed impurities. The measurement unit records the isolated impurities, and the potentiometer records the analysis results.

Gas from the tested cylinder (10) flows through a reducing valve (11), input adjusting valve (12) and rotameter (13) to the detector comparator cell. The gas pressure is controlled by a pressure gauge at the reducing valve. Then the gas flows to the chromatographic column and from there to the detector working chamber and through the outlet control valve (14) escapes into the air. A gas meter can be placed after the outlet valve. The control valve (15) is used for blowing out. The

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residual pressure is controlled by the pressure gauge (16). All gas pipes are metal capillary tubes. Some of them are flexible.

The chromatographic column is in form of a coiled copper tube filled with a sorbent, e.g. with molecular sieves 13X. The column can be moved from a liquid nitrogen bath to a heater and back again. Thus a variable temperature field from -196 to 300°C moves along the sorbent layer.

2.1.64 as 873985/26-25. GENKIN,Yu.M.et alia.
EXPERIMENTAL FACTORY OF THE INST OF NATURAL GAS.
(12.8.69.) Bul 13/1.4.69. Class 421. Int.Cl.G 01n.

AUTHORS: Genkin, Yu. M; Shevelev, B. P.; Sidorov, A. P.; Podol'skaya, Ye. V.; Maksimov, P. K.; and Estrin, V. N.

Opytnyy Zavod Vsesoyuznogo Nauchno - Issledovatel'skogo Instituta Prirodnogo Gaza

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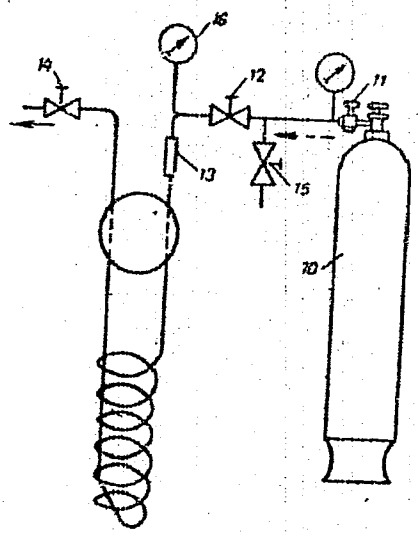

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1/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--RECOVERY CYCLES OF MASS EVOKED RESPONSES AT VARIOUS LEVELS OF THE VISUAL SYSTEM TO ELECTRICAL STIMULATION OF THE OPTIC NERVE -U-

AUTHOR-(02)-SHEVELEV, I.A., LEVSHINA, I.P.

COUNTRY OF INFO--USSR

SOURCE--NEYROFIZIOLOGIYA, 1970, VOL 2, NR 3, PP 251-259

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VISUAL PERCEPTION, ELECTROPHYSIOLOGY, BIOPOTENTIAL, BRAIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0392 STEP NO--UR/0660/70/002/003/0251/0259

CIRC ACCESSION NO--AP0121076

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0121076

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN CATS UNDER AMITHAL ANAESTHESIA RECOVERY CYCLES WERE STUDIED OF MASS EVOKED POTENTIALS OF THE OPTIC TRACT, LATERAL GENICULATE BODY, VISUAL RADIATION AND PRIMARY PROJECTION AREA OF THE VISUAL CORTEX TO THE ELECTRICAL STIMULATION OF THE OPTIC NERVE (IN SOME EXPERIMENTS THE VISUAL RADIATION) WITH PAIRED ELECTICAL STIMULI OF ABOVE THRESHOLD INTENSITY. THE RECOVERY OF THE AMPLITUDE AND TEMPORAL CHARACTERISTICS OF ALL THE COMPONENTS OF EVOKED POTENTIALS WAS STUDIED. SIMULTANEOUS RECORDS OF RESPONSES IN ALL PARTS OF THE VISUAL SYSTEM (EXCEPT THE RETINA) ALLOW US TO COMPARE UNDER IDENTICAL CONDITIONS THE CHANGES IN THEIR REACTIVITY AFTER THE FIRST STIMULUS. IT WAS SHOWN THAT AT THE UPPER LEVELS OF THE VISUAL SYSTEM THE EXALTATION PHASE OF THE RECOVERY CYCLE AND THE DEPRESSIVE ONE FOLLOWING AFTER IT BECOME MORE AND MORE PRONOUNCED AND PROTRACTED. DEPRESSION IS MOSTLY PRONOUNCED IN THE VISUAL CORTEX AND FOR THE LATE COMPONENTS OF THE EVOKED RESPONSE. THE DATA SUGGEST, THAT UNDER SUCH EXPERIMENTAL CONDITIONS THE PROCESSES OF SUCCESIVE INHIBITION IN THE CORTEX ARE MORE PRONOUNCED THEN IN THE LOWER PARTS OF THE SYSTEM. THERE ARE GROUNDS TO BELIEVE THAT THE DEPRESSIVE EFFECT IN THE CORTEX IS PARTLY CONNECTED WITH THE PRE AND PARTLY WITH THE POST SYNAPTIC INHIBITION.

FACILITY: THE INSTITUTE OF HIGHER NERVOUS ACTIVITY AND NEUROPHYSIOLOGY, ACADEMY OF SCIENCES, USSR.

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USSR

SHEVELEV, L. P. UDC 539.3:534.1

"Stability of a Ribbed Cylindrical Shell With Initial Imperfections in the Elastic-Plastic State"

Sb. tr. Leningr. in-t inzh. zh.-d. transp. (Collection of Works of the Leningrad Institute of Railroad Transportation Engineers), 1972, No. 342, pp 80-93 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V345)

Translation: Equilibrium equations are compiled for the subcritical deformed state of a shell subjected to a uniform pressure on the basis of the deformation theory of plasticity for an incompressible material while retaining hypotheses associated with the notion of a structurally orthotropic shell. A stability analysis of a previously determined deformation state under the action of small perturbations on the shell is made on the basis of the concept of a continuing load. A sample calculation is given in which the amplitude of the initial bending is varied. A diagram is constructed showing the corrected coefficient η_1 proposed by Yu. A. Shimanskiy as a function of the amplitude of the initial bending. Author's abstract.

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UDC 539.3:534.1

SHEVELEV, L. P.

"Effect of Initial Imperfections on the Stability and Bearing Capacity of a Hollow Spherical Shell in the Elastic-Plastic State"

Sb. tr. Leningr. in-t inzh. zh.-d. transp. (Collection of Works of the Leningrad Institute of Railroad Transportation Engineers), 1972, No. 342, pp 93-102 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V346)

Translation: Equations for the equilibrium of a hollow spherical shell with initial bending under the action of hydrostatic pressure on it were compiled and solved on the basis of the deformation theory of the plasticity of an incompressible material. The author verified the stability of this state on the action of small perturbations. The critical pressure and the bearing capacity were constructed as functions of the amplitude of the initial bending in a sample calculation of a specific shell. Author's abstract.

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SHEVELEV, S.A.

CHEMICAL TRANSFORMATION

SINGLE-ELECTRON TRANSFER AND CHEMICAL TRANSFORMATIONS

(Conference in Rostov-on-Don)

[Article by Candidate of Chemical Sciences Z. V. Todres; Moscow, Vestnik Akademii Nauk SSSR, Russian, No 9, September 1973, pp 107-108]

A conference on the role of electron transfers in chemical reactions was held in Rostov-on-Don on 22-25 May. It was organized by the Northern Caucasus Scientific Center of the Higher School; about 40 reports were presented. Participating in the conference were the leading chemical institutes of the AS USSR and the republican academies, and also Rostov-on-Don, Moscow, Leningrad and Gor'kiy universities.

Chemical reactions are usually regarded as the rupture and formation of bonds, that is, the rearranged as the rupture tion of a molecule. It is now considered, however, that the skeletransfer of atoms or atomic arrangements is preceded by the placement of electrons from one of the reacting molecules to the other. The study of that stage, which has become possible through the use of new instrumental methods of investigation, especially of electron paramagnetic and nuclear magnetic resonance, expands concepts of the reaction mechanism as a sequence of elementary steps known to us.

As a result of electron transfer new particles appear, not known to organic chemistry of the past. The properties of those products were examined in a number of reports. The properties of those chrome C and other enzymes with Fe(III) after electron transfer give nonequilibrium forms in which the iron has already gone over into the state Fe(II) but the protein part still retains its previous configuration (R. M. Dovydov). Hemoglobin, cyto-4-4'-dinitro-cis-stilbene into an anion-radical is accompanied by complete cis-trans-isomerization. The transformation of the molecule leads to establishment of equilibrium: 4-nitro-cis-stilbene in the presence of electron transfer gives a mixture

JPRS 60661, 30 Dec 73

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of anion-radicals of cis- and trans-stilbenes (Z. V. Todres). In the reports of S. P. Solodovnikov and M. I. Terekhova it was shown that the properties of the products of electron transfer depend not only on the distribution of electrons over the molecule but also on the entry of those products into the composition of the ionic associates.

Triethylgermyl derivatives of lithium or potassium, as Ye. N. Gladyshev has established, react in benzene or hexane with benzophenol, giving alcoholates of triethylgermyl-substituted benzhydrol. A completely different product forms in hexaethyldigermane, side by side with benzophenone ketyl. In other words, in hexametapol of the existing particle appears the triethylgermyl anion, which reacts further according to a scheme of single-electron transfer. Bimetallic organic compounds such as bis-(triethylgermyl)-mercury or bis-(triethylgermyl)-cadmium are capable of participating in electron transfer also in non-polar solvents of the type of benzene, if a sufficiently strong acceptor, for example tetracyanogen-ethylene, is used (Academician G. A. Razuvayev and G. A. Abakumov).

V. Ts. Kampel' and O. Yu. Okhlobystin revealed the general mechanism of the oxidation of organometallic compounds, according to which a single electron is torn away from those derivatives and they simultaneously decompose into an organic radical and the cation of the metal. The radicals, if they do not react chemically, give off still another electron, being oxidized to carbocations. The reaction ends with the stage of stabilization of those cations, for example, through their reaction with molecules of the solvent. The establishment of such a mechanism explains the formation of benzyl acetate as the main product of the oxidation of benzylmercuracetate by lead tetra-acetate in acetic acid. Aliphatic mercury chlorides under the same conditions give ethers of acetic acid, paraffins and olefins. The formation of hydrocarbons in that reaction also indicates the existence of radicals as intermediates of the oxidation.

The ability of organomercuric compounds to act as electron donors was shown on the example of reactions of diaryl mercury with tetranitromethane (S. A. Shevelev, I. P. Beletskaya et al). Upon reacting with nitronium fluoroborate in sulfolan, diaryl mercury gives an aromatic hydrocarbon and (trinitromethyl)-aryl mercury as the main product and a certain quantity of $ArNO_2$ (A. N. Kashin, I. P. Beletskaya, and V. I. Stanko). The obtained results agree with the hypothesis that in the first stage of the reaction the cation-radical of diaryl mercury and the radical $\cdot NO_2$ form. The latter forms through electron transfer either to the nitronium cation or to the tetranitromethane. The cation-radical of diaryl mercury decomposes, giving the highly reactive radical Ar·. That radical reacts insignificantly with the lowly reactive

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UDC 550.834.05

BALASHKAND, M. I., SHEVELEV, V. A., TETERIN, A. I., MIKHEYEVA, L. V., MAYOROV, V. V., LOVLYA, S. A., Ramenskoye Department of the All-Union Scientific Research Institute of Geophysics

"A Gas Detonation Installation"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 2, Jan 73, Author's Certificate No 362131, Division G, filed 24 Aug 67, published 13 Dec 72, p 74

Translation: This Author's Certificate introduces a gas detonation installation consisting of tanks with oxidizer and fuel, measuring vessels, a detonation head, an explosive chamber, an exhaust chamber, electromagnetic valves, tubing, pipelines, and a unit for controlling the electromagnetic valve system. As a distinguishing feature of the patent, the reliability of explosion cutoff is improved by making the explosive detonation head in the form of cavities separated by valves. One of the cavities is equipped with a device for igniting the gas mixture, and is connected to the explosion chamber by a channel with check valve.

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1/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--CALCULATION OF EXTERNAL HEAT TRANSFER IN CONTINUOUS FURNACES -U-

AUTHOR--SHEVELEV, V.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(2), 147-51

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--HEAT TRANSFER, METALLURGIC FURNACE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1392 STEP NO--UR/0148/70/013/002/0147/0151

CIRC ACCESSION NO--AT0120185

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0120185

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A THEORETICAL DISCUSSION IS GIVEN WITH THE CALCN. OF THE TEMP. GRADIENT IN THE METAL AND OF THE ELEMENTS ALONG THE LENGTH OF A CONTINUOUS FURNACE USING INTEGRAL, ZONAL CALCN. METHODS WITH SINGLE DIMENSIONAL HEAT EXCHANGE. ONLY A GENERAL APPORACH IS GIVEN, AND, FOR EACH PARTICULAR FURNACE, SPECIAL, CONCRETE EQUATIONS SHOULD BE DERIVED; FOR INSTANCE THE DETN. OF THE DISTRIBUTION OF HEAT EVOLUTION AND THE VOL. OF COMBUSTION PRODUCTS ALONG THE LENGTH OF THE PARTICULAR FURNACE. FACILITY: NAUCH. ISSLED. INST. MET., CHELYABINSK, USSR.

UNCLASSIFIED

Acc. Nr: AP0042494 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code: UR0096

84231y Isentropic expansion characteristics of combustion products of Stavropol natural gas-gaseous oxygen-potassium carbonate additive system. Rozhdestvenskii, I. B.; Olevinskii, K. K.; Shevelev, V. P. (USSR). *Teploenergetika* 1970, 17(2), 67–9 (Russ). The thermodynamics of the title process is discussed in relation to the usefulness of natural gas for magnetohydrodynamic power generation. Phase, chem., and energy equil. are considered, and literature equations are used in calcg. a series of thermodynamic parameters for max. combustor gas temps. Dissocn., chem. reactions, and formation of pos. and neg. ions in the K_2CO_3-contg. system were included in the calcns. Combustor gas temps., pressures, ds., flow rates, sound velocity, and the isentropic index (n) are given as functions of Mach no. for combustor pressures of 5–50 kg/cm², using 1–1.5 × theoretically required O. Then $n = \ln(p_s/p)/\ln(\rho_s/\rho)$ (where p and ρ are pressure and d., resp., and the subscripts refer to combustor conditions).

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BAPTIZMANSKIY, V. I., BAKIEVAN, N., DMITRIYEV, Yu. V., PROSVIRIN, K. S., SHEVELEV, V. V., YANKELEVICH, Ya. P., PODGORODETSKIY, A. A.

"The Problem of the Use of Coagulators During Deoxidation of Steel by Aluminum"

Moscow, Izv. Vuzov, Chernaya Metallurgiya, No 2, 1971, p 51-55.

Abstract: Analysis of the hydrodynamic and thermodynamic factors shows the possibility of using secondary large particles as coagulators for the products of deoxidization of steel with aluminum. The introduction of crushed lime, feldspar, and aluminum to the center mass during deoxidization in the process of siphon pouring of seven-ton ingots of type 3 kp steel was tested. Studies of rolled products produced from these ingots confirmed experimentally the possibility of reducing the level of contamination of the steel with stable nonmetallic inclusions by combined introduction of deoxidizers and coagulators.

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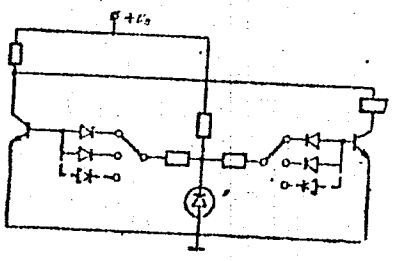
SKRITSKIY, L. G., USSR Author's Certificate No 303672



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SHEVELEV, Yu. D.

RAN / /R-760 / 5-APR-73
Dec. 1972

(4)

Kestenboym, Kh. S., F. D. Turetskaya, L. A. Chudov, and Yu. D. Shevelev. Euler and Lagrange methods for calculations of point explosions in a heterogeneous atmosphere.

IN: Trudy Sektsii po chislennym metodam v gazovoy dinamiki 2-go Mezhdunarodnogo kollokviuma po gazodinamike vzryva i reagiroyushikh sistem, 1969. T. 3. Moscow, 1971, 85-100 (RZhMekh, 5/72, #5B238)

A study is made of a strong point explosion in a nonviscous thermally nonconductive gas. It is assumed that the density and pressure of the atmosphere are altitude-dependent according to an exponential law. Motion is considered in the half plane Π ($r \geq 0$), bounded by the axis of symmetry. The equations of unstabilized motion are written out in terms of Euler and Lagrange coordinates. Region G_0, containing the point in which the explosion occurs, is isolated in half plane π. In solving the problem, the boundary $\Gamma_o(t)$ of the region is selected in such a manner that within the entire G_0 region, the pressure could be considered constant. The region of difference calculation, G_1, is bounded by the curve $\Gamma_o(t)$, the shock wave front $\Gamma_1(t)$, and two segments of the axis of symmetry. The solution of a number of unidimensional problems, including the problem of a point explosion in a homogeneous atmosphere with account taken of counter-pressure, was checked by an applicable method for its verification, good coincidence being obtained with results of the work by D. Ye. Okhotsimskiy, I. L. Kondrashev, Z. P. Vlasov, and R. K. Kazakov (Trudy Matematicheskogo instituta AN SSSR, 1957, 50, 66, RZhMekh, 3/58, #2659). Fairly good correspondence is shown in comparison of the results of calculation of the title problem in terms of Euler and Lagrange variables.

USSR

UDC: 532.526

ANDREYEV, G. N., SHEVELEV, Yu. D.

"Concerning the Three-Dimensional Boundary Layer on a Segmental Solid at Supersonic Velocities"

Tr. Sektsii po chisl. metodam v gaz. dinamike 2-go Mezhdunar. kollokviuma po gazodinamike vzryva i reagiruyushchikh sistem, 1969, T. 1 (Works of the Section on Numerical Methods in Gas Dynamics, Second International Colloquium on Gasdynamics of Explosion and Reacting Systems, 1969, Vol 1), Moscow, 1971, pp 227-246 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7B677)

Translation: The authors consider the spatial boundary layer in a supersonic flow on a solid having the shape of an inverted cone spherically blunted on the leading end. The numerical method of finite differences is used. The initial differential equations are approximated by difference equations on a curvilinear computational grid with unequally spaced intersections. In selecting the computational grid, account is taken of strong localized changes in the curvature of the surface. The paper gives the results of calculations of drag and heat flux on the

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USSR

ANDREYEV, G. N., SHEVELEV, Yu. D., Tr. Sektsii po chisl. metodam v gas. dinamike 2-go Mezhdunar. kollokviuma po gazodinamike vzryva i reagiruyushchikh sistem, 1969, T. 1, Moscow, 1971, pp 227-246

surface of a solid with inverted cone angle of $\beta = 30°$ at a Mach number of $M \approx \infty$, and angles of attack of $\alpha \approx 15\text{-}30°$. It is assumed that the gas is perfect and that the temperature at the wall is predetermined. Bibliography of 6 titles. V. Ya. Shkadov.

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USSR

UDC 616.988.75-06:616.831.06:616.8-009.24

KOGAN, B. S., KOVALEV, N. K., and SHEVELEV, YU. F., Chair of Psychiatry, Kursk Medical Institute, and Kursk Oblast Psychiatric Hospital

"Convulsive States in Patients With Influenza Injury of the Central Nervous System"

Moscow, Klinicheskaya Meditsina, No 7, 1971, pp 93-96

Abstract: A number of authors have described epileptic seizures in cases of influenza and the influenza type of encephalitis. The present authors observed 256 patients with acute affections of the central nervous system of influenza origin who were patients at the Kursk Oblast Psychiatric Hospital and the Kursk City Infectious Disease Hospital between 1954 and 1967. In 42 cases, the disease was accompanied by epileptic seizures, and in 37 of these, influenza infection caused convulsive seizures (in 23 cases during the acute period, and in 14 cases, 2 or 3 weeks after the disappearance of the major clinical manifestations of influenza.) In 5 patients the course of an earlier epilepsy of undetermined origin was adversely affected. All patients had their conditions clinically diagnosed by internists and specialists, and in 32 cases, the diagnoses were confirmed by serological studies. Eight of the 42 cases observed died. Study of their medical histories showed that they

USSR

KOGAN, B. S., et al., Klinicheskaya Meditsina, No 7, 1971, pp 93-96

had passed through various infections (measles, scarlatina, typhus, malaria, etc.), 9 were alcoholics, 6 had had cranial trauma with loss of consciousness, and 3 had had dynamic disturbances of cerebral circulation. The period of fever lasted from 1 to 7 days in 33 patients, and 8 days or longer in 9 others. The following neurological symptoms were found: damage to the cerebral cranial nerves (38 patients); tendon anisoreflexia (26); pyramidal hemisyndrome (14); pathological reflexes (12); instability of the Romberg test (12); and meningeal symptoms (25). The authors support the opinion of A. I. Viting and other investigators as to the toxic nature of affections of the central nervous system in influenza. A total of 18 of the 42 patients with epileptic symptoms showed local symptoms indicating the presence of an epileptogenic zone, and the other 24 showed general convulsive seizures without clearcut local symptoms. The attacks were treated with chloral hydrate, barbamil, hexenal, and other drugs. The 34 nonlethal cases received supportive therapy, including small doses of sedatives for several months after the cessation of the attacks.

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1/2 017 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--A METHOD FOR REDUCING THE BLIND ZONE OF WEATHER RADAR -U-

AUTHOR-(04)-VAKSENBURG, S.I., GORNOSTAYEV, N.V., GOREVICH, V.I., SHEVELA, G.F.
COUNTRY OF INFO--USSR

SOURCE--MOSCOW, TRUDY TRET'YEGO VSESOYUZNOGO SOVESHCHANIYA PO RADIOLOKATSIONNOY METEOROLOGII, YEAR NOT STATED, PP 230-237
DATE PUBLISHED--------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, NAVIGATION

TOPIC TAGS--METEOROLOGIC RADAR, ATMOSPHERIC CLOUD/(U)MRLI METEOROLOGIC RADAR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/1021 STEP NO--UR/0000/70/000/000/0230/0237

CIRC ACCESSION NO--AT0110716
UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AT0110716

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOME OF THE PROBLEMS INVOLVED IN DETERMINING THE LOWER CLOUD BOUNDARY WITH THE MRL-1 TWO RANGE METEOROLOGICAL RADAR DURING ITS OPERATION IN A VERTICAL SOUNDING REGIME ARE EXAMINED. LIMITATIONS ARISE WHICH ARE ASSOCIATED WITH THE MINIMUM EFFECTIVE RANGE OF THIS RADAR WHICH IS DETERMINED NOT ONLY BY THE DURATION OF THE SOUNDING PULSE, BUT TO A CONSIDERABLE DEGREE BY THE EFFECT OF THE FAR SIDE LOBES OF THE ANTENNA. IN DETERMINING THE LOWER CLOUD BOUNDARY IT IS DESIRABLE TO ELIMINATE THE EFFECT OF THE SIDE LOBES WHILE RETAINING NOMAL RESPONSE IN THE DIRECTION OF THE MAIN LOBE IN THE ANTENNA DIRECTIONAL DIAGRAM. THE MRL SIDE LOBES APPARENTLY CAN BE SUPPRESSED USING AN APPARATUS WHOSE BLOCK DIAGRAM IS SHOWN AND DISCUSSED IN THIS ARTICLE. SUPPRESSION WILL OCCUR IF THE SIGNAL RECEIVED IN THE SUPPRESSION CHANNEL EXCEEDS THE SIGNAL RECEIVED IN THE MAIN CHANNEL IN THE DIRECTION OF THE SIDE LOBES. THE RECEIVER, CONSISTING OF A MAIN CHANNEL AND A SUPPRESSION CHANNEL, MAKES IT POSSIBLE TO SUPPRESS THE SIDE LOBES BY SUBTRACTING FROM THE VIDEOFREQUENCY THE SIGNALS RECEIVED BY THE SUPPRESSION ANTENNA AND THE MAIN ANTENNA FROM THE SIDE LOBES. INITIAL TESTS HAVE SHOWN THAT IT IS POSSIBLE TO COMPENSATE REFLECTIONS FROM LOCAL OBJECTS AND TO REDUCE THE BLIND ZONE, BUT FURTHER TESTS WILL BE MADE IN THE SUMMER OF 1967.

UNCLASSIFIED

SHEVELEVA, S.E. Medical Service

J-9605

122

Journal
So: Military Medical Journal
Nov 1970

UDK 616.017.3:615.5

Lieutenant-Colonel of the Medical Service N. N. Zalud'ko, S. E. Sheveleva. A case of anaphylactic shock following the injection ~~of cocarboxylase~~.

A case of anaphylactic shock has been observed following the intramuscular injection of co-carboxylase in the usual dose.

The patient S., aged 48, was being treated at a hospital in January 1970 for a stomach ulcer and aggravation of chronic coronary insufficiency, accompanied by extrasystolic arrhythmia. Alongside with with other medical preparations, the patient was getting injections of group-B vitamins, without any side reactions. In 1964, he had suffered an allergic reaction on being given an injection of penicillin. The reaction took the form of a feeling of lack of air, nausea, vomiting, general weakness, dizziness, and a brief loss of consciousness.

Because of the worsening of his condition, the patient -- who, by then, was already living at home — was given injections of co-carboxylase in addition to coronarolithic preparations.

The first such intramuscular injection (50 mg.) was made on March 1, 1970, and was well tolerated. On the second day after another injection—this one of 100 mg. of co-carboxylase—there appeared, within two minutes, acute weakness, difficulty in breathing, a burning sensation throughout the body, dizziness, vomiting and brief losses of consciousness.

On examination 5 to 7 minutes later, the patient was regarded as being in serious condition. He was sluggish, his actions slowed down, his color was pale and his skin was covered with cold perspiration. He had acrocyanosis, a breathing rate of 26 a minute, indistinct cardiac tones, and the pulse rate and blood pressure could not be determined.

The patient was urgently given an injection of 1 ml. of a 5-percent solution of ephedrine, 1 ml. of a 1-percent solution of dimedrol (diphenhydramine), 2 ml. of a 10-percent solution of caffeine and 2 ml. of cordiamine (nikethamine). After 20 minutes, the patient's condition improved. Pulse and blood pressure became recognizable, the skin began to feel warm to the touch again, acrocyanosis disappeared and so did the shortness of breath and the burning sensation. The EKG data were the same as before the allergic reaction. Repeated tests of peripheral blood and serumal transaminase revealed no deviation from normal levels. Twenty-four hours later, his condition was fully satisfactory. He spent the next five days being treated at home, whereupon he returned to work.

Taking all of the foregoing into account, it may be assumed that the injections of vitamin B_1 which preceded the anaphylactic reaction resulted in sensitization of the body and later brought about a shock following a second intramuscular injection of co-carboxylase. The present case shows the imperative need for carefully justifying the use of any medicinal preparation — especially in persons inclined toward allergic reactions.

Received in July 1970.

1/2 038 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--DEVELOPMENT OF THE MEMBRANE POTENTIAL OF NERVE AND MUSCLE CELLS IN ONTOGENESIS OF MAMMALS -U-

AUTHOR--SHEVELEVA, V.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. EVOL. BIOKHIM. FIZIOL. 1970, 6(1), 95-103

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SODIUM, POTASSIUM, METABOLISM, CELL PHYSIOLOGY, CENTRAL NERVOUS SYSTEM, BIOELECTRIC PHENOMENON, MUSCLE PHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0369 STEP NO--UR/0385/70/006/001/0095/0103

CIRC ACCESSION NO--AP0132598

UNCLASSIFIED

2/2 038 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0132598

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW WITH 82 REFS. EARLY STAGES OF ONTOGENESIS OF NERVE AND MUSCLE CELLS OF MAMMALS ARE CHARACTERIZED BY LOW MEMBRANE POTENTIALS CAUSED BY THE SMALL K CONTENT AND HIGH NA LEVELS INSIDE THE CELLS. WITH AGE THE K LEVEL INCREASES AND THE NA LEVEL DECREASES IN PROPORTION TO METABOLIC CHANGES IN THE ORGANISM, CAUSING AN INCREASE OF THE MEMBRANE POTENTIAL OF CELLS AND SUPPRESSION OF THEIR AUTOMATIC ACTIVITY. DEPRIVATION OF CELLS OF ADULT ANIMALS OF INNERVATION OF THE CENTRAL NERVOUS SYSTEM DURING DENERVATION OF ORGANS LEADS TO A DECREASE OF THE OXIDN. PROCESSES AND LOSS OF K IONS. THIS DECREASES THE MAGNITUDE OF THE MEMBRANE POTENTIAL OF THE CELLS AND RESTORES IN THEM THE AUTOMATIC BIOELEC. ACTIVITY PECULIAR TO THE EARLY PERIOD OF ONTOGENESIS. FACILITY: INST. EVOL. PHYSIOL. BIOCHEM., LENINGRAD, USSR.

UNCLASSIFIED

USSR

VINOGRADOV, A. V., URNOV, A. M., and SHEVEL'KO, V. P., Physics Institute imeni P. N. Lebedev, USSR Academy of Sciences

"Distribution by Orbital Quantum Numbers of Highly-Excited Atoms, Forming by Collisions of Heavy Particles"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 60, No 6, Jun 71, pp 2060-2065

Abstract: The formation of highly excited atoms as a result of atomic collisions is of interest in a number of problems in astrophysics and plasma physics. Since the energy spectrum of a highly excited atom is similar to that of hydrogen, it is especially important to investigate the processes that take place and lead to the formation of excited hydrogen atoms. The usual method of obtaining excited hydrogen atoms in laboratory plasma is the charge transfer of protons and the excitation of H atoms by collisions with various atomic targets.

In this article the authors find analytical expressions for the cross sections of formation of fast H atoms in the reactions $H^+ + A \rightarrow H(n\,l) + A^+$ and $H(1s) + A \rightarrow H(n\,l) + A$ (A is an arbitrary atom) that are valid when $n \gg 1$. Comparison with precise computations, using an argon target as an example, showed that these formulas may be used even when $n \geqslant 3$.

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VINOGRADOV, A. V., et al., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 60, No 6, Jun 71, pp 2060-2065

As would be expected, hydrogen atoms form with the greatest probability in states with $l = 0, 1$.

Figures 1 and 2 show the cross section of charge transfer as a function of the principal quantum number and the orbital moment, respectively; Figures 3 and 4 show the cross sections of excitation of a hydrogen atom as a function of the principal quantum number of a finite state and the orbital moment of the finite state, respectively.

The article contains 4 figures and a bibliography of 11 titles.

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1/2 018 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--BORN CROSS SECTION FOR THE N, N PRIME TRANSITICT -U-

AUTHOR-(03)-BEYGMAN, I.L., URNOV, A.M., SHEVELKO, V.P.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 5, PP 1825-1829

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HYDROGEN, ATOM, GREEN FUNCTION, ELECTRON TRANSITION, OXCILLATOR STRENGTH, CAPTURE CROSS SECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0015 STEP NO--UR/0056/70/058/005/1825/8129

CIRC ACCESSION NO--AP0127665

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--27NOV7C

CIRC ACCESSION NO--AP0127665

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ANALYTIC EXPRESSION FOR THE TOTAL (WITH RESPECT TO L AND L PRIME) SQUARED BORN AMPLITUDE FOR THE N, N PRIME TRANSITION IS OBTAINED BY MEANS OF THE COULOMB GREEN'S FUNCTION. TTHE FORMULA CAN BE SIGNIFICANTLY SIMPLIFIED IN THE LIMITING CASES OF LARGE VALUES OF N AND N PRIME. AN EXPRESSION FOR THE TRANSITION CROSS SECTION IS OBTAINED AT HIGH ELECTRON ENERGIES WHICH IS SIMILAR TO THE KRAMERS APPROXIMATION FOR OSCILLATOR STRENGTH (I IS MUCH LESS THAN DELTA N IS MUCH LESS THAN N). FACILITY: FIZICHESKIY INSTITUT IM. P. N. LEBEDEVA, AN SSSR.

UNCLASSIFIED

USSR

ODARICH, O. M., and SHEVELO, V. M. (Institute of Cybernetics, Ukrainian Academy of Sciences, Institute of Mathematics, Ukrainian Academy of Sciences)

"Asymptotic Behavior of Monotonic Solutions of Nonlinear, Second-Order Differential Equations with Delay"

Kiev, Dopovidi Akademii Nauk Ukrains'koi RSR: Seriya A - Fizyko-Tekhnichni ta Matematychni Nauky, December 1971, pp 1072-1075

Abstract: Necessary and necessary and sufficient conditions for the existence of monotonic solutions with different asymptotic behiavior, for $t \to \infty$, are found for the equation

$$y''(t) + p(t) y^{\alpha}(\tau(t)) = 0, \quad t \geqslant t_0 \geqslant 0, \tag{1}$$

$$(0 \leqslant p(t) \in C,\ \tau(t) \in C,\ \tau(t) < t,\ \alpha = \frac{r}{s},$$

r and s are positive odd integers).

The effect of delay on the asymptotic behavior of nonoscillating solutions is explained by a comparison of these conditions with corresponding conditions 1/2

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ODARICH, O. M., and SHEVELO, V. M., Dopovidi Akademiï Nauk Ukrains'koi RSR: Seriya A - Fizyko-Tekhnichni ta Matematychni Nauky, December 1971, pp 1072-1075

for an ordinary differential equation [equation (1) with $\tau(t) \equiv t$]. The regularity of the simultaneous existence (coexistence) of nonoscillating solutions with different asymptotic behavior is established, and a comparison with the corresponding regularity in the case of ordinary equations is made. Examples are given which illustrate the significant qualitative effect of delay on the asymptotic behavior of the solutions.

There are five references.

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UDC 63:551.509.6

USSR

SHEVELUKHA, V. S., Candidate of Agricultural Sciences, RUDASHKO, A. F., KRYSHNEV, I. I., and KOVALEV, V. M., Belorussian Agricultural Academy

"An Artificial Climate Chamber"

Moscow, Vestnik Sel'skokhozyaystvennoy Nauki, No 11, Nov 70, pp 131-135

Abstract: An artificial climate chamber has been designed which provides for programed control of the temperature, humidity, and intensity and duration of artificial light in experiments concerned with the physiology of plants and plant growth. The outer frame is lined with a double layer of insulating material. The inner dimensions (length 2,600 m, width 960 m, height 1,590 m) are ample to accommodate simultaneously 18 to 24 pots with plants, 2 to 4 mechanical auxanographs, and a variety of sensors and recording devices. There are 3 interconnected compartments, two of which contain the plants while the third holds a ventilator and condenser. In the center of the chamber are an electric heater, humidifier, temperature and humidity sensors, etc. The chamber has been used mainly to study plant growth as a function of time and to determine the reasons for the "bottlenecks" in plant growth arising from external and internal factors. The results of these studies are briefly described.

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R002202920013-0"

Acc. Nr: AP0038121 S Ref. Code: UR 0326

PRIMARY SOURCE: Fiziologiya Rasteniy, 1970, Vol 17, Nr 1, pp 198-207

INVESTIGATION OF DIURNAL PERIODICITY AND RHYTHM OF GROWTH OF THE LEAVES AND ROOT VEGETABLE OF BEET PLANTS BY AN AUXANOGRAPHIC TECHNIQUE

V. S. SHEVELUKHA

Byelorussian Agricultural Academy, Gorki, Mogilyov Region

A mechanical field auxanograph is designed which is capable of automatic and continuous registration of root vegetable thickness growth under field and laboratory conditions. The diurnal periodicity and rhythm of the rates of growth processes in fodder and sugar beet plants growing under field or artificial conditions are studied. Linear growth of leaves and growth of root vegetable thickness are recorded simultaneously. Under field conditions growth of fodder and sugar beet plants predominantly occurs in the evening and night. In the daytime growth processes are inhibited as a rule. A partial asynchronism in the rate, time and duration of growth of underground and overground

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REEL/FRAME
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organs is observed; this is due to different sensitivity of thes organs to the main environmental factors. Solar light and lowering of the relative humidity of air in the daytime exert the greatest inhibiting effect on growth of beet plants. Auxanographic data are employed with the purpose of making an overall assessment of the effect of meteorological conditions on beet growth and determination of the their optimal combinations ensuring maximal crop yields. Data are also obtained which show that under controlled conditions (in the phytotron) an endogenous growth rhythm is very pronounced in beet plants. In field conditions this rhythm can be masked by sharp changes of the environmental factors and predomininace of exogenous growth rhythm. Growth responses to changes in air humidity arise in beet plants after a few minutes in the dark as well as in light, whereas growth responses to irrigation of the same plant species can be recorded only in the dark or under weak illumination.

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19731175

USSR

UDC 620.194

SHEVELYA, V. V., OTBLESK, B. Ye., Kiev Institute of Civil Aviation Engineering

"Inelastic Phenomena in Metal Fatigue"

Kiev, Fiziko-khimicheskaya Mekhanika Materialov, Vol 8, No 3, 1972, pp 7-12.

Abstract: This work presents the results of a study of the changes in internal friction in copper and low-carbon steel under cyclical loading. An inverse relationship was found between the level of cyclical stress and the maximum of internal friction. Internal friction during cyclical loading of copper is compared with the Young modulus and microhardness. The maximum of Young modulus and microhardness match the minimum of internal friction, when the dislocation density reaches a critical value. This is followed by a reduction in modulus and microhardness plus an increase in internal friction, indicating disintegration of the material. The changes in internal friction for steel are slightly different, resulting from the peculiarities of deformation of BCC metals. The changes in Young modulus and microhardness, however, are the same as for copper, with their maximum values occurring at the second maximum of internal friction (for moderate stresses). It is con-

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USSR

SHEVELYA, V. V., OTBLESK, B. Ye., Kiev, Fiziko-khimicheskaya Mekhanika Materialov, Vol 8, No 3, 1972, pp 7-12.

cluded that this sort of combined study of internal friction characteristics in the kiloherz frequency range can reveal the changes occurring in the fine crystalline structure during metal fatigue.

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USSR UDC 620.194

ALYAB'YEV, A. Ya., SHEVELYA, V. V., and ROZHKOV, M. N., Kiev Institute of Civil Air Fleet Engineers

"Electron Microscope Study of the Mechanism of Fretting Corrosion"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 6, No 6, 1970, pp 24-28

Abstract: This work reports on a systematic electron microscope analysis of the actual contact zones and zones of primary influence in which fatigue-oxidative processes facilitating active development of fretting corrosion occur. Layer-by-layer study of the damaged material using electronography to evaluate the state of the crystalline structure and determine the nature of the fretting corrosion products produced new data on the structural changes in the surface layers of type 1Kh18N9T steel. Analysis showed that during fretting corrosion the cyclical contact loads prepare the near-surface layers of the metal for intensive oxidation. The amorphous state of the surface volumes of metal in the contact zone causes increased chemical activity of the surface during fretting corrosion. The formation of volumes of metal with differing degrees of hardness during fretting corrosion indicates that processes of hardening and softening occur simultaneously in the surface layers.
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1/2 017 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--STRUCTURAL CHANGES DURING FRETTING CORROSION -U-

AUTHOR--ALYABYEV, A.YA., SHEVELYA, V.V., ROZHKOV, M.N.

COUNTRY OF INFO--USSR

SOURCE--FIZ.-KHIM. MEKH. MATER. 1970, 5(6), 650-5

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--METAL CRACKING, CRYSTAL DISLOCATION, FRETTING CORROSION, MATERIAL FATIGUE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0663 STEP NO--UR/0369/70/005/006/0650/0655

CIRC ACCESSION NO--AP0105640

UNCLASSIFIED

2/2 017 UNCLASSIFIED

CIRC ACCESSION NO--AP0105640 PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF FRETTING CORROSION WERE STUDIED BY RUBBING 2 PIECES OF STEEL AGAINST EACH OTHER. THE RESULTS OF THE FRETTING CORROSION CAN BE DIVIDED INTO 3 ZONES: (1) THE ZONE OF CONTACT, (2) THE ZONE OF PRIMARY EFFECT LYING IMMEDIATELY BELOW THE ZONE OF CONTACT, AND (3) THE ZONE OF SECONDARY EFFECT BELOW THAT. IN ZONE (1) WERE FOUND ELEMENTS OF THE DEFECTIVE STRUCTURE ALONG WITH TRACES OF SLIPPAGE APPEARING AS GROUPS OF PACKETS DISSECTING THE STRUCTURE GRAINS IN ONE OR MORE DIRECTIONS AND FORMING ORTHORHOMBIC CELLS. ZONE (2) DOES NOT PARTICIPATE IN THE CONTACT BUT IS SUBJECT TO CONSIDERABLE STRAINS AND STRESSES. THE STRUCTURE OF THIS ZONE IS SUBJECT OT ALTERNATING TANGENTIAL STRESSES WHICH CAUSES SLIPPAGE IN FAVORABLY ORIENTED GRAINS, DEFECTS IN PACKING, AND TWINNING. IN ZONE (3) THERE WAS NO TRANSCRYST. SLIPPAGE AND THERE WAS ONLY DISLOCATION OF STRUCTURE FREQUENTLY FOUND IN AREAS OF MODERATE DEFORMATION. THE WEAKENING OF METAL SUBJECT TO FRETTING CORROSION PROCEEDS IN THE FOLLOWING STEPS: THE PROCESSES OF EXTRUSION AND INTRUSION CHARACTERISTIC FOR ALTERNATING SIGN LOADS CAUSE THE APPEARANCE OF NEW SURFACE WHICH OXIDIZE IMMEDIATELY. MOLS. OF O ARE ADSORBED ON THE DEFECTIVE SURFACES AND GRADUALLY PENETRATE INTO THE CRYSTALS. OXIDES FORM WITHIN THE CRYSTALS AND INTERFERE WITH DISLOCATION SLIPPAGE CAUSING MICROCRACKS. FATIGUE CAUSES THE APPEARANCE OF VACANCIES WHICH COALESCE FORMING PORES; O PENETRATING THE PORES OXIDIZES THEIR SURFACES LEADING TO FORMATION OF MICROCRACKS.

UNCLASSIFIED

USSR

PUZAKOVA, T. I., SHEVENKO, S. M., Avtomatiz. Obrabotki Yaponsk. Patentn. Dokumentatsii (Automated Processing of Japanese Patent Documentation), Vypusk 2 (Tr. TSNIIPI, ser 3) 1970, pp 249-265 (from R-Zh -- Informatika, No 4, Apr 71, Abstract No 71.4.103 (71R-31)

address the translation of this ideograph. The large core storage of the BESM-6 makes it possible to store simultaneously: a Japanese dictionary, a Russian or English dictionary; a translation program; the text being translated, which may contain up to 3,000 words; and its Russian or English translation. Longer texts are translated piece by piece. In the case where a certain word of the input text is not a ideograph (katakana or hiragana) KHIRAG or KATAK is written in the translation. If the necessary word is not in the dictionary NETP is written in the translation in its place. Translations of the same ideograph that have different meanings are separated by the symbol ◇ , and synonyms are separated by the sign ; (a period and a comma). The operating scheme of the translation algorithm, a sample of a Japanese patent, and the computer s translations of it into Russian and English are given.

Acc. Nr: AP0047232 Ref. Code: UR0504

PRIMARY SOURCE: Terapevticheskiy Arkhiv, 1970, Vol 42, Nr 1, pp 70-75

FUNCTIONAL CONDITION OF THE POLYCYSTIC KIDNEYS AND DISTRIBUTION OF FLUID IN THE ORGANISM

M. G. Sheverda, A. Z. Parkhomchuk

Summary

The authors studied the functional condition of the polycystic kidneys, their participation in the electrolyte metabolism and distribution of fluid in the organism of 27 patients at the age of 18—60 and in 25 practically healthy individuals. In 24 out of 27 patients arterial pressure was higher than the age norm (140/90—225/115 mm Hg). Moderate azotemia (up to 60 mg%) was observed in 6 persons. In the examined patients a drop in the tubular reabsorbtion of the water and renal plasmaflow, as well as moderate decrease of glomerular filtration were revealed. There was no parallelism between the water and sodium reabsorbtion, the latter being higher and occured mainly in the distal portion of the tubules. A drop in tubular reabsorbtion of the water was due to the presence of bilateral chronic pyelonephritis. Preservation and increase of tubular reabsorbtion of sodium depends on secondary hyperaldosteronism, to the presence of which there testified retention of sodium in the erythrocytes, decrease of diurnal urine excretion of sodium, lowering of sodium/potassium ration in saliva, lowering of the plasma sodium/sodium gradient of erythrocytes.

REEL/FRAME

19790736

USSR

UDC 547.13 + 661.781.6

FOMINA, N. V., SHEVERDINA, N. O., and KOCHESHKOV, K. A., Academician,
Physico-Chemical Institute imeni L. Ya. Karpov, Moscow

"Synthesis of Germanium-Organic Compounds of the Type Ar_2GeX_2"

Moscow, Doklady Akademii Nauk SSSR, Vol 201, No 5, 1971, pp 1128-1129

Abstract: Previous methods of preparing germanium-organic compounds led to mixtures which were difficult to purify. A method proposed earlier for the arylation or alkylation of germanium salts in the presence of Cu powder was extended to cover the introduction of a second aryl group starting with $ArGeX_3$ at much higher temperatures. All reactions were run in an argon atmosphere. Starting with tribromophenylgermanium at 250° for 10 hours with Cu and iodobenzene, dibromodiphenylgermanium was obtained. Yield was dependent on the ratio of the starting materials. Diiododiphenyl-germanium and dibromophenyltoluylgermanium were obtained in the same fashion.

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UDC 621.391.13

USSR

PINSKER, M. S. and SHEVERDYAYEV, A. Yu.

"Throughput Capacity With Zero Error and Erasure"

Problemy Peredachi Informatsii, No. 1, 1970, pp. 20-24

Abstract: This article introduces a concept of throughput capacity with zero error and erasure and shows that for a rather broad class of channels (including, for example, a fully unbalanced binary channel) this throughput capacity coincides with ordinary throughput capacity. The throughput capacity of a channel with zero error and erasure is defined as the upper bound of the transmission rates of codes for which the probability of error is equal to zero while the probability of an erasure by the decoding device can be arbitrarily small.

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UDC 51

USSR

IRIKOV, V. A., SHEVEROV, V. G.

"An Approach to Planning Research and Development Programs"

Tr. Konf. Mosk. fiz.-tekhn. in-ta, 1970. Ser. Aerofiz. Prikl. mat. (Works of the Conference of Moscow Physico-Technical Institute, 1970. Aerophysics and Applied Mathematics Series), Moscow, 1971, pp 103-112 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V534)

No abstract

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UDC 621.387.1

USSR

KALASHNIKOV, V.P., SHEVKOLOVICH, YU.V.

"Method And Device For Registration Of Current-Voltage Characteristic and The Power Curve Of D-C Sources"

Otbor i peredacha inform. Resp. mezhved. sb. (Selection And Transmission Of Information. Republic Interdepartmental Collection), 1970, No 24, pp 113-118 (from RZh--Elektronika i yeye primeneniye, No 10, October 1970, Abstract No 10A194)

Translation: The advantages are considered of the dynamic method of investigating the output characteristics of thermionic converters as compared with static methods. The principal circuit is presented of a device for taking down current-voltage characteristics by the pulse method. The precision of taking down the characteristics amounts to ~ 10 percent. The simplicity and convenience is noted of working with the aid of the device described. 2 ref. S.R.

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UDC: 621.396.6-181.5

USSR

SHEVKOPLYAS, G. B.

"'Matrix' Capacitor for Tuning a Hybrid Film Quartz Oscillator"

Kiev, Izvestiya VUZov SSSR--Radiotekhnika, No. 5, 1970, pp 655-658

Abstract: The difficulty involved in the design of film quartz oscillators of the hybrid type is the sputtering of the capacitor on the circuit. Such capacitors usually have low Q and high capacitance dispersion, thus making it difficult to tune the frequency selective oscillatory circuit. To eliminate these defects, the author proposes a "matrix" capacitor consisting of n sections with low capacitance and formed by zones of overlapping upper and lower conducting strips with a dielectric layer. The process of tuning involves removing several sections to obtain the required capacitance. In capacitors of this type, the Q is a function of the frequency. Curves for this dependence as well as a diagram of the capacitor structural system are given. Diagrams are also given of the circuit pattern of a quartz oscillator of this type and the equivalent circuit. The author derives formulas for calculating the parameters of the matrix capacitor. Results are given of an experimental check of nine specimens of this type of oscillator.

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1/2 013 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--NEOPLASTIC VIRUSES OVERCOME SPECIES SPECIFIC CELLULAR RESISTANCE -U-

AUTHOR-(02)-SHEVLYAGIN, V.YA., KARAZHAS, N.V.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR, VOL 25, NO 3, 1970, PP 87-93

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EMBRYOLOGY, ADENOVIRUS, DNA, RNA, SARCOMA, VIRUS, NEOPLASM, PARAINFLUENZA VIRUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0681 STEP NO--UR/0248/70/025/003/0087/0093

CIRC ACCESSION NO--AP0130121

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0136121

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE PRESENT ARTICLE WE REPORT ON THE TRANSFORMATION OF NATURALLY RESISTANT HUMAN EMBRYONIC MYODERMAL TISSUE BY POLYOMA VIRUS AND TYPE 12 HUMAN ADENOVIRUS (DNA CONTAINING VIRUSES) AND ROUS SARCOMA VIRUS (RNA CONTAINING VIRUS). TYPICAL VIRUS INDUCED TRANSFORMATION OF RESISTANT TISSUES BY NEOPLASTIC VIRUSES OCCURRED UNDER THE EFFECT OF THESE NEOPLASTIC VIRUSES AND INACTIVATED TYPE I PARAINFLUENZA VIRUS (SENDAI STRAIN). FACILITY: INSTITUTE OF EPIDEMICLOGY AND MICROBICLOGY IMENI N. F. GAMALEYA, USSR ACADEMY OF MEDICAL SCIENCES, MOSCOW.

UNCLASSIFIED

USSR UDC 616-006/092.9-02:576.858.75 (Sendai).09[illegible]

SHLYANKEVICH, M. A., MEKLER, L. B., and SHEVLYAGIN, V. YA., Institute of Experimental and Elinical Oncology, Academy of Medical Sciences USSR, and Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR

"Function of the Genome of Inactivated Sendai Virus in the Formation of Artificial Heterokaryons"

Leningrad, Voprosy Onkologii, No 1, 1970, pp 58-62

Abstract: Using the immunoflurescence method, the authors found that during the formation of heterokaryons obtained from HRO cells and chick fibroblasts, Sendai virus inactivated by ultraviolet irradiation or treatment with betapropiolactone stimulated the production of T-antigen alone. There was no biosynthesis of viral components (V-antigen, hemagglutinins, ribonucleoproteins) or of the complete infective virus. T-antigen was found in ordinary cells and heterokaryons for a brief period of time, disappearing after 5-7 days. T-antigen occurred only in the cytoplasm, not on the cell surface.

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AN0022624

UR9013

AUTHOR-- SHEVLYAKOVA, DEPUTY DIRECTOR FOR RESEARCH, INSTITUTE OF CHEMISTRY OF HIGH MOLECULAR COMPOUNDS OF THE ACADEMY OF SCIENCES OF THE UKRAINIAN REPUBLIC, CANDIDATE OF TECHNICAL SCIENCES

TITLE-- THE PRESENT AND THE FUTURE OF POLYMERS

NEWSPAPER-- PRAVDA UKRAINY, FEBRUARY 11, 1970, P 4, COLS 5-7

ABSTRACT-- THE INSTITUTE OF HIGH MOLECULAR COMPOUNDS, HEADED BY YU. S. LIPATOV, A CORRESPONDING MEMBER OF THE UKRAINIAN ACADEMY OF SCIENCES, IS THE LEADING SOVIET INSTITUTE IN THE STUDY OF POLYURETHANES. IT COORDINATES RESEARCH IN THIS AREA. ITS NEW PROFILE, CHEMISTRY AND PHYSICS OF POLYURETHANES, WAS DEFINED FOUR YEARS AGO BY THE PRESIDIUM OF THE UKRAINIAN ACADEMY OF SCIENCES. IT ENCOMPASSES THE FOLLOWING-- SYNTHESIS OF DIISOCYANATES, POLYESTERS AND OLIGOMERS, SYNTHESIS OF NEW POLYURETHANES, STUDY OF THE FORMATION MECHANISM AND KINETICS OF LINEAR AND GRID-LIKE POLYURETHANES, AND THE DEVELOPMENT OF SUCH MATERIALS AS RUBBERS, FIBERS, COATINGS, ADHESIVES, FILMS, AND HERMETICS.

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ASSOCIATES OF THE INSTITUTE HAVE DEVELOPED A NEW TYPE OF POLYMER - POLYURETHANACRYLATES. THE NEW MATERIAL IS FLEXIBLE AND TRANSPARENT.

THE INSTITUTE COLLABORATED WITH THE KIYEV AVIATION PLANT IN DEVELOPING NEW COLD- AND SHOCK-RESISTANT THERMOPLASTIC MATERIALS OF THE "VINAKRIL" TYPE.

MACHINERY FOR THE PHOTOCHEMICAL CROSS LINKING OF POLYMERS, DEVELOPED BY THE INSTITUTE, WILL GO ON THE LINE AT THE SAKSK CHEMICAL PLANT /CRIMEA/ IN 1970.

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AA0040727 SHEVLYAKOV N.F. UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent,

242338 HEAT-INSULATION of the top part of a steel ingot is provided by a rapidly hardening composition which is poured between the casting mould and a model. In an example, the composition consists of 95-96% of quartz sand and 4-5% of ferrochrome slag, with addition of 7-10% of a binder comprising water glass and a foaming agent). The insulation does not require any additional drying; it is porous and permeable to gases. This method is simpler and more rapid than the conventional methods.

12.5.68 as 1239974/22-2. V.G. DODOKA et alis. "ZAPOROZHSTAL'" WORKS. (2.9.69) Bul 15/25.4.69. Class 31b. Int.Cl.B 22d.

19750379

AA0040727

AUTHORS: Dodoka, V. G.; Zhil'ko, M. M.; Podgorodetskiy, A. A.; Gurskiy, G. L.; Tkachenko, A. S.; Shchastnyy, P. M.; Shevlyakov, N. F.; Petrov, L. G.; Rudichev, K. P.; and Sidorenko, O. A.

Zavod "Zaporozhstal'"

19750380

1/2 020 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--CHANGE OF THE GEOMETRIC PROFILE ON THE SURFACE OF A THERMOPLASTIC CARRIER AS A FUNCTION OF THE WIDTH OF A SINGLE ELECTRON TRACE -U-

AUTHOR--NAKHODKIN, N.G., NEMTSEV, V.P., SHEVLYAKOV, YU.A.

COUNTRY OF INFO--USSR

SOURCE--RADIOTEKH. ELEKTRON. 1970, 15(1), 212-13

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, METHODS AND EQUIPMENT

TOPIC TAGS--THERMOPLASTIC MATERIAL, ELECTRON BEAM, SURFACE PROPERTY, RECORDING EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/0671 STEP NO--UR/0109/70/015/001/0212/0213

CIRC ACCESSION NO--AP0055374
UNCLASSIFIED

2/2 020 UNCLASSIFIED

CIRC ACCESSION NO--AP0055374 PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN RECORDING INFORMATION ON THERMOPLASTICS BY MEANS OF AN ELECTRON BEAM, GROOVES ARE FORMED ON THE SURFACE. THE DEFORMATION PROFILE OF COLOPHONY SUPPORTS WAS STUDIED BY A MICRO INTERFEROMETRIC METHOD AS A FUNCTION OF THE SLIT WIDTH. THE WIDENING OF THE GROOVES WAS ATTRIBUTED TO VISCOUS FLOW OF THE SUPPORT, SWELLING OF SPACE CHARGE DUE TO COULOMB REPULSION FORCES, AND DIFFRACTION OF THE ELECTRON BEAM; THE LAST PROCESS WAS LESS IMPORTANT.

UNCLASSIFIED

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R002202920013-0"

Acc. Nr: AP0045063 Abstracting Service: 5/70 INTERNAT. AEROSPACE ABST. Ref. Code: UR0198

A70-23293 Dynamic effect of a liquid in an open reservoir performing a translational motion (Dinamicheskoe deistvie zhidkosti v otkrytom rezervuare, peremeshchaiushchemsia postupatel'no). V. N. Tishchenko and Iu. A. Shevliakov (Donetskii Gosudarstvennyi Universitet, Donetsk, Ukrainian SSR). *Prikladnaia Mekhanika*, vol. 6, Jan. 1970, p. 94-100. 8 refs. In Russian.

Discussion of the problem of the motion of a liquid in open cylindrical U- and V-shaped tanks, in the case where a tank moves along the generating line according to a given law. A solution to the problem is obtained by reducing the equations of motion of an ideal incompressible fluid to systems of equations analogous to the equations of motion of a plane unsteady compressible gas flow with a polytropic index of two. It is shown that the longitudinal force is independent of time and the tank length.

V.P.

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REEL/FRAME
19771976

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UDC: 681.84

NAKHODKIN, N. G., KUVSHINSKIY, N. G., SHEVLYAKOV, YU. A., NEMTSEV, V. P., NEDUZHIY, S. A., BORODKINA, M. S., USPENSKIY, V. I., SHEBERSOV, V. I., Kiev State University imeni T. G. Shevchenko and the All-Union Scientific Research Institute of the Chemical and Photographic Industry

"A Photothermopolymerization Data Recording Method"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 3, 1970, p 48, patent No 259961, filed 25 Jan 67

Abstract: This Author's Certificate introduces a photothermopolymerization data recording method based on the cross-linking response of polymers when they are exposed to radiation such as light. As a distinguishing feature of this method, the resolving power of the recording is improved and permanent recordings are made by converting the latent image to a three-dimensional relief with subsequent fixation through the process of heating the carrier material to its softening temperature and then cooling it.

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USSR

UDC 629.78.002

MAKAROV, A. D., SHEVNIN, G. A.

"Study of Certain Characteristics of Workability in the Precision Turning of the A19 Aluminum Alloy"

Tr. Ufim. aviats. in-ta (Works of the Ufimskiy Aviation Institute), 1972, No. 29, pp 26-31 (from RZh-41. Raketostroyeniye, No 11, Nov 72, Abstract No 11.41.198)

Translation: Certain features of the workability of the A19 aluminum alloy are shown. The dependence of contact temperature, the degree of penetration of the cutting instrument, the roughness of the worked surface, and the cost of the working on the cutting rate for a fast-cutting and a hard-alloy cut was investigated. The nature of the abrasion for the different cuts investigated is shown. It was established that there is a close interrelationship between the characteristics of the cutting process investigated. 3 ill., 1 table, 3 ref. Resume.

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USSR

UDC: 532.529

BOGDANOVICH, S.YA., GUSEYNOV, CH.S. and SHEVSKIY, A.I.

"Dispersed Composition of Aerosol in Natural Gas Flow Under Various Pressures"

Odessa, 11-ya Vses. Konf. po. Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972 (11-th All-Union Conference on Problems of Evaporation, Combustion and Gas Dynamics of Dispersion Systems, 1972), 1972, p 19 (from Referativnyy Zhurnal-Mekhanika, 1973, Abstract No 2B1223)

Translation: Results are described of the analysis of experimental data on pressure effects on the process of droplet formation in natural gas. The dispersed composition of droplets at different pressures and flow velocities was measured by K.S. Shifrin optical method. It is shown that V.G. Levich relation between droplet size and flow velocity is true for natural gas, the coefficient of proportionality for this relation is determined and a single curve of droplet distribution in nondimensional form is plotted. Since the droplet size depends on the surface tension of the liquid at its boundary with gas, a test installation was prepared based on the method of maximum gas bubble pressure,

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BOGDANOVICH, S. YA., et al., 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972, p 19

variation of surface tension of carbon dioxide condensate in wide range of pressures (1 to 100 atm) was investigated.

It is shown that pressure has a pronounced effect on the surface tension of the condensate (σ = 22.5 dyn/cm at 1 atm, σ = 13 dyn/cm at 50 atm), the resulting modul radius of the droplet varies from 150 to 39 mcm respectively.

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USSR

UDC 669.15-194.2:620.171:519.272

SHEVTSOV, A. L., and ZLATKIN, L. Z., Omsk

"Effect of Chemical Composition on the Mechanical Properties of 32Kh06L Steel"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 3, May-Jun 71, pp 143-147

Abstract: The effect of the chemical composition of 32Kh06L steel (GOST 7823-65) on its mechanical properties was investigated on club-shaped samples (GOST 977-58) which were improved by tempering in water from 900°±20°C). The impact strength was determined on 10 x 10-mm notched samples. A correlation dependence between the indices of mechanical properties and chemical composition was established on the basis of mathematical processing of data on 500 industrial melts. The results obtained (regression equations, correlation coefficients, authenticity of the dependence) show that tensile strength, yield point, impact strength, and hardness have an authentic correlation dependence on the majority of the chemical elements of the 32Kh06L steel. An analysis of the regression equations and dependencies of mechanical properties on C, Mn, Cr, Ni, and P shows that chemical elements affect differently -- in terms of intensity -- the mechanical properties of steels. Carbon has the greatest influence on mechanical properties, followed by Mn and Cr, and then hydrogen. Equations of multiple correlation are also derived, which make it possible to obtain for actual cases the optimal mechanical characteristics.

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USSR

UDC 619:616.9-036.2

TARSHIS, M. G., ROMANOVA, G. I., and SHEVTSOV, A. M., All-Union Scientific Research and Technological Institute of the Biological Industry

"Criteria for Quantitative Evaluation of the Intensity of an Epizootic Situation"

Moscow, Veterinariya, No 11, 1972, p 56

Translation: It is relatively one-sided to evaluate the degree of infection of a particular area from the incidence of the disease or number of foci (affected localities). Yet the planning of control and preventive measures (specially calculation of the requirement for biological preparations) must be based chiefly on a comprehensive assessment of the epizootic situation in different parts of the nosological range.

By intensity of an epizootic situation we mean the intensity with which the disease is manifested among domestic and wild animals in a particular area and over a definite period of time. The intensity is characterized by temporal and spatial parameters.

We propose the index of epizooticity and fraction of affected localities as elements constituting the intensity of an epizootic situation. The index of epizooticity is the ratio of the number of years during which outbreaks were

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TARSHIS, M. G., et al., Veterinariya, No 11, 1972, p 56

recorded in a given area to the number of years observed. It is calculated from the formula: I = t/T, where t is the years when the disease was recorded and T is the number of years observed. The theoretical limits of fluctuation of this criterion are from 0 to 1. We believe this index characterizes the dynamics of manifestation of a disease in time.

The fraction of affected localities (H) is the ratio of the number of affected localities (n) to the total number of inhabited localities (N) in a given area during the period of time under consideration (H = n/N). The theoretical limits of fluctuation of this criterion are from 0 to 1. It is used to judge the spatial distribution of the disease.

Thus, the intensity of an epizootic situation is expressed by the formula: W = IH, where W is the product of the index of epizooticity and fraction of affected localities.

A comprehensive quantitative evaluation of the intensity of an epizootic situation was applied to a statistical model of blackleg over a 20-year period in an A rank territory of an administrative oblast of the RSFSR to study the range of the disease and the prognosis. The limits of fluctuation of the intensity of the epizootic situation during the 20 years and by 5-year periods varied from 0 to 0.30 in 53 territories of the administrative rayons.

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TARSHIS, M. G., et al., Veterinariya, No 11, 1972, p 56

The ranking of W showed a stable relationship by 5-year intervals and a stable interdependence by rayons. A comparison of W with the cartographic model of backleg for the oblast showed that W varied with the hypsometric characteristics of the rayons of the oblast.

Analysis of the dynamics of W made it possible to forecast the probable nature of this parameter during the next 5 years, assuming no change in environmental conditions or level of preventive measures used.

The intensity of an epizootic situation is undoubtedly the result of the realization of the preconditions for specific diseases whose detection and quantitative evaluation can be achieved by experimental and logical (mathematical) methods.

Thus, evaluation of the degree of infection of an area from the intensity of the epizootic situation is of value in elucidating the structure of the range of a disease, in forecasting it, and in planning differentiated control and prophylactic measures, vaccination in particular.

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UDC: 519.2:54

USSR

BUYANOVSKIY, L. A., L'VOV, S. V., STAROVOYTOV, G. P., SHEVTSOV, A. S.

"On the Problem of Constructing Nonlinear Regression Models"

Tr. Spets. konstrukt byuro po avtomatike v neftepererabotke i neftekhimii (Works of the Special Design Office on Automation in Petroleum Refining and Petrochemistry), 1971, vyp. 3, pp 150-180 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V269)

Translation: In constructing statistical models of processes in chemical technology, it quite frequently turns out that a linear regression model is inadequate. In this case, a polynomial regression model is used. It is convenient for polynomial regression to use rotatable plans for which the variance of the estimate for the response function depends only on the distance of a point of the phase space from the coordinate origin. The plan matrix $X=(x_{ij})$ is the set of coordinates of the points of the factor space (columns of the matrix) at which observations should be made. The necessary and sufficient conditions for the matrix X under which a plan is rotatable are discussed in detail. The following definitions of vector power and matrix power are used. The p-th power $x^{(p)}$

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UDC: 519.2:54

BUYANOVSKIY, L. A., L'VOV, S. V., STAROVOYTOV, G. P., SHEVTSOV, A. S.

"Optimization of Processes Represented by Polynomial Models"

Tr. Spets. konstrukt. byuro po avtomatike v neftepererabotke i neftekhimii (Works of the Special Design Office on Automation in Petroleum Refining and Petrochemistry), 1971, vyp. 3, pp 160-169 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V270)

Translation: Some models of search for the extremum points of technological processes are considered. The iteration step method of search for the optimum is as follows. The first step is a total or fractional factor experiment. From the resultant data (linear regression) the gradient of the response function is determined, a shift is made in the estimated direction, a model of linear regression is again constructed in the neighborhood of the new point and so on. Motion continues until the localized behavior of the response function can be adequately represented by means of linear regression. An extremum point is found in the region where linear regression is inadequate. A polynomial regres-

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BUYANOVSKIY, L. A. et al., Tr. Spets. konstrukt. byuro po avtomatike v neftepererabotke i neftekhimii, 1971, vyp. 3, pp 160-169

sion is constructed with a predetermined order to refine the response function in this region. The classical method of search for the extremum consists in varying only one parameter at each step while the others are held constant. The random search method involves conducting successive experiments at points lying in a direction from the given point which is chosen at random. The shift is made toward the new point or in the opposite direction depending on the estimates of the response function at the new and given points. A detailed comparison is made of these three methods of search for the extremum. A number of advantages of the step method are set forth. Consideration is given to the problem of selecting the number of observations which minimizes the error in determination of the gradient. A study is also made of the mathematical expectation per observation for the increment in the response. A. Zaslavskiy.

USSR UDC 621.396.624:621.383.5

SHEVTSOV, E. A.

"Evaluating the Sensitivity of Photodetectors Designed for Optical Communications Lines"

Moscow, Elektrosvyaz', No 8, 1971, pp 62-67

Abstract: The author investigates the mutual relation between some existing parameters of photodetectors and proposes a criterion for evaluating the sensitivity of photodetectors in optical communications lines operating in the straight detection mode. This criterion, the coefficient of ideality, is defined as the ratio of the optical powers at the input of ideal and real photodetectors. The relation between this criterion and existing criteria is established.

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USSR UDC 621.396.622

ZLENTSOV, A. V., KHAKHALKIN, V. N., SHEVTSOV, E. A.

"Selection of Optimum Coupling With the Resonator in a Photoparametric Converter"

Tr. Mosk. elektrotekhn. in-ta svyazi (Works of the Moscow Institute of Electrical Communications Engineering), 1970, vyp., pp 10-15 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D306)

Translation: The authors consider the circuit of a photoparametric converter based on a photodiode located in a resonator which is one of the loads of a balanced waveguide bridge. The optimum coupling of the waveguide resonator with an arm of the waveguide bridge is calculated. The curve for the change in detector power as a function of the amount of coupling has a maximum close to critical coupling. It is recommended that the coupling coefficients be selected somewhat greater than 1 on the basis of the signal-to-noise ratio. The signal-to-noise level is determined by the converted frequency fluctuations of the klystron oscillator. The maximum signal--to-noise ratio is observed at a rather small imbalance of the bridge. A. K.

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USSR

UDC: 51:621.391

BLUVBAND, Z. M., SHEVTSOV, G. A.

"Influence of the Properties of an Information Receiver on Some Characteristics of a Communications System"

Otbor i peredacha inform. Resp. mezhved. sb. (Data Collection and Transmission. Republic Interdepartmental Collection), 1972, vyp. 34, pp 23-26 (from RZh-Kibernetika, No 5, May 73, abstract No 5V580 by Yu. Lin'kov)

Translation: The paper introduces the concept of the average quantity of information of use to an addressee, which in a special case is the conventional indefiniteness of a system X. In a similar way the authors generalize the concept of average conditional indefiniteness of a system X under condition that the state of an observed system Y is known. The difference between the introduced indeterminacies is called the quantity of information for the given addressee.

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USSR

UDC: 621.396.6.019.3

SHEVTSOV, G. A., KOZELETSKIY, E. I.

"Selecting the Duration of Industrial Preoperation of Radio Electronic Equipment"

V sb. Obmen opytom v radioprom-sti (Experience Pooling in the Radio Industry--collection of works), Vyp. 4, Moscow, 1970, pp 37-39 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7V267)

Translation: The authors consider the possibility of determining the optimum duration of industrial pre-operation of radio equipment before putting it into production. Graphic material is given which may be used in production practice. Resumé.

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USSR

BYUKOV, YA. V., et al., Differentsial'nyye Upravneniya, Vol IX, No 8, 1973, PP 1523-1524

It is assumed everywhere that when $n \geq n_0$; $u, v > 0$:

$f(n, u, v) \geq 0$; $f(n, -u, -v) \leq 0$; $F(n, u, v) \geq 0$; $F(n, -u, -v) \leq 0$.

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USSR

UDC 517.949

BYKOV, Ya. V. and SHEVTSOV, Ye. I.

"Sufficient Conditions for the Oscillatory State of Solutions of Nonlinear Equations in Finite Differences"

Minsk, Differentsial'nyye Uravneniya, No 12, 1973, pp 2241-2244

Abstract: A function $u(n)$ $(n = 0,1,2,\ldots)$ is said to be nonoscillatory if $\exists n_0$ is such that $\forall n \geqslant n_0$ with either $u(n) > 0$ or $u(n) < 0$. If this is not the case, $u(n)$ is oscillatory. It is everywhere assumed that functions $a(n)$, $r(n) \neq 0$, $f(n,u,v)$, $F(n,u,v)$ are defined in the region $n \geqslant 0$; $-\infty < u,v < +\infty$; $\forall n \geqslant n_0$, $\forall u,v > 0$ are valid inequalities of $f(n,u,v) \geqslant 0$; $f(n,-u,-v) \leqslant 0$; $F(n,u,v) \geqslant 0$; $F(n,-u,-v) \leqslant 0$; $a(n) \geqslant 0$; $r(n) > 0$;

$$b(n) \equiv \sum_{m=1}^{n-1} \frac{1}{r(m)} \to +\infty$$

as $n \to +\infty$. Based on these assumptions, a number of theorems are proved and sufficient conditions for the oscillation of solutions to some equations are given.

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USSR

UDC 54-126+546.73+546.81

NATANSON, E. M. (deceased), KUZ'MOVICH, V. V., CHEGORYAN, V. M., IVKINA, N. A., and SHEVTSOVA, A. F., Institute of Colloidal Chemistry and Chemistry of Water, Acad. Sc. UkrSSR

"Formation of Metallopolymers on the Basis of Silicontungstic Acid"

Kiyev, Ukrainskii Khimicheskii Zhurnal, Vol 39, No 3, Mar 73, pp 249-253

Abstract: The reduction of silicontungstic acid with tin and cobalt has been investigated. Blue forms of silicontungstic acid have been prepared stable towards tin and cobalt. Conditions have been studied for the formation of tin and cobalt metallopolymers starting from the barium salts of silicon-tungstic acid blues. The heat conductivity and electroconductivity of the metallopolymers obtained have been evaluated. The data obtained indicated that the metallic phase is in highly dispersed state, stable to oxidation; the metallic particles are isolated from each other by a film of the barium salt of silicontungstic acid blues.

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USSR UDC 54-126+546.72+661.88

DUBININ, V. N., KUZ'MOVICH, V. V., SHEVTSOVA, A. F., IVKINA, N. A., and NATANSON, E. M., Institute of Physics and Institute of Colloid Chemistry and the Chemistry of Water, Academy of Sciences Ukr. SSR

"Application of the Moessbauer Effect for the Study of the Composition of Metal Polymers Derived from Inorganic Polymers"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol 36, No 12, Dec 70, pp 1,298-1,299

Abstract: The Moessbauer effect was applied for the study of Fe and Sn polymers derived from silicomolybdic acid. The synthesis of these polymers has been described elsewhere. The Moessbauer effect spectra of the Fe polymers exhibited a doublet indicating the presence of amorphous $Fe(OH)_3$. Presumably highly disperse crystalline beta-FeOOH or alpha-FeOOH was present in the polymers. A second doublet corresponded to interaction of colloidal metallic Fe with the basis of the polymer. The magnitude of this doublet indicated that the amount of Fe which had reacted with the polymer basis was 15 and 30%, respectively, for polymers prepared by the electrolytic method and those prepared chemically. The spectra of Sn polymers constituted a superposition
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USSR

DUBININ, V. N., et al, Ukrainskiy Khimicheskiy Zhurnal, Vol 36, No 12, Dec 70, pp 1,298-1,299

of spectra typical for SnO_2 and metallic Sn, and of a doublet with parameters characteristic for Sn dioxide and hydroxide. The relative content of metallic Sn was approximately 10%.

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1/2 008 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--MAGNESIUM OXIDE PRODUCTION -U-

AUTHOR-(02)-OVECHKIN, YE.K., SHEVTSOVA, L.N.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,373

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970, A

DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, MAGNESIUM OXIDE, CARBONATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1447 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0126978

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AA0126978

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MGO IS PREPD. BY TREATING A MGCL SUB2 SOLN. WITH A NA SUB2 CO SUB3 SOLN. IN A FRESHLY PPTD. SUSPENSION OF BASIC MG CARBONATE. THE SUSPENSION IS FILTERED AND WASHED AND THE RESULTING BASIC MG CARBONATE IS CALCINED.

UNCLASSIFIED

USSR

UDC: 616.981.553-036.22

PAK, S. G., ANDRONNIKOV, V. A., NEKHAEVA, N. D., SHEVTSOVA, V. S., KARNOVA, S. K., and SEMENOVA, D. V., First Moscow Medical Institute imeni I. M. Sechenov and Chuvash Republic Sanitary-Epidemiological Station

"Observation of Group Infection With Type E Botulism"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, Vol 48, No 1, Jan 71, pp 59-63

Abstract: A trend toward increased occurrence of type E botulism has been observed all over the world. In the fall of 1967, 5 of 24 persons in the Chuvash ASSR who this type of botulism from salted fish (carp) died. Fourteen of the afflicted persons were seriously ill, seven had maderately severe cases, and only three had mild cases. The incubation period was short: in 22 cases, it varied from 4 to 12 hr, in one case it was 18 hr, and in another case it lasted 7 days (a mild case). In the five fatal cases, the incubation period did not exceed 4 hr. Vaccination with antitoxin is the first therapeutic measure. Four patients of the above group were not treated with the serum and died, since botulism had not been diagnosed. Although introduction of the serum in the early stages of the disease has

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PAK, S. G., et al, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, Vol 48, No 1, Jan 71, pp 59-63

the most beneficial effects, the serum can be administered at any stage in which botulism has been recognized and intoxication phenomena are observed. Comprehensive treatment must cover all fundamental pathogenetic factors, including suppression of growth of the pathogen, detoxification, and changes in the biochemistry of the neuromuscular system. To this end, the remaining 19 patients of the above group were treated by gastric lavage, parenteral introduction of salt solutions, glucose, and blood substitutes; one person received blood plasma and four were treated with polyvinylpyrrolidone. Botulism must be regarded as a toxicoinfectious process; hence levomycin was administered to all 19 patients to cut down further growth of the pathogen. Adenosine triphosphoric acid and cocarboxylase were administered also.

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USSR UDC 616.988.7-092.9-07:616.453.-008.6-07

GONCHAROV, N. P., VERBERGER, K., SHUBERT, K., and SHEVTSOVA, Z. V., Institute of Experimental Pathology and Therapy, Academy of Sciences USSR, and Institut e of Microbiology and Experimental Therapy, German Academy of Sciences (Jena)

"Secretory Function of the Adrenal Cortex in Macaques With Monkey Hemorrhagic Fever"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 2, 1971, pp 31-37

Abstract: Forty compounds were isolated from the adrenal blood of healthy and sick rhesus monkeys. Thirteen of these were steroid hormones identified by infrared spectrography: hydrocortisone, aldosterone, corticosterone, 17-alpha-hydroxyprogesterone, 17-hydroxy-11-desoxycorticosterone, steroid-lactone (11β, 18-dihydroxy-4-androsten-3-one-17β-acids lactone 20 $\rightarrow$ 18), dehydroepiandrosterone, 7-ketodehydroepiandrosterone, androstenedione, 11β-hydroxyandrostenedione, adrenosterone, pregnenolone, and progesterone. Hemorrhagic fever induced by inoculating the animals with the Sukhumi-64 strain of the virus sharply impaired the secretory function of the adrenal cortex. The degree of impairment was determined by the severity of the infection. Th e secretion of aldosterone and corticosterone increased in all stages of the

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GONCHAROV, N. P., et al., Patologicheskaya Fiziologiya i Eksperimental;naya Terapiya, No 2, 1971, pp 31-37

disease while that of hydrocortisone decreased sharply. The glucocorticoids are known to play a major role in the nonspecific defensive reactions of the body. Hence, inhibition of the biosynthesis of the most active glucocorticoid, hydrocortisone, in the severely ill monkeys helped to lower their general resistance, thus aggravating the course of the disease.

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1/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--THE MUTAGENIC EFFECT OF VIRUSES. REPORT II. CYTOGENETIC STUDY OF MONKEY HEMORRHAGIC FEVER -U-

AUTHOR-(05)-MARKARYAN, D.S., SHEVTSOVA, Z.V., KUKSOVA, M.I., MACHAVARIANI, M.G., ABDZHIAN, M.V.

COUNTRY OF INFO--USSR

SOURCE--GENETIKA, 1970, NR 1, PP 144-150

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEMORRHAGIC FEVER, VIRUS, MUTAGEN, MONKEY, BONE MARROW, MITOSIS, CHROMOSOME

CONTROL MARKING--NO RESTRICTIONS

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CIRC ACCESSION NO--AP0136729

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CYTOGENETIC STUDY OF MONOEY HEMORRHAGIC FEVER SHOWED A DECREASE IN MITOTIC ACTIVITY AND AN INCREASE IN THE NUMBER OF DYING CELLS AND CELLS WITH PATHOLOGICAL CHANGES IN INFECTED MONKEY BONE MARROW. EXPERIMENTAL MONKEY HEMORRHAGIC FEVER WAS ACCOMPANIED BY AN INCREASE IN THE LEVEL OF CHROMOSOME ABERRATIONS IN BONE MARROW CELLS AND IN CULTURES OF PERIPHERAL BLOOD LEUKOCYTES. INJECTION OF CONCENTRATED VIRUS CONTAINING MATERIAL PRODUCED A HIGHER YIELD OF CHROMOSOME ABERRATIONS THAN INJECTION OF NATIVE MATERIAL. HEMORRHAGIC FEVER VIRUS INDUCED CHROMOSOME REARRANGEMENTS OF THE CHROMATIC TYPE, ANALOGOUS TO THOSE OBSERVED IN CONTROL CELLS DURING SPONTANEOUS MUTATION. THE OBSERVED INCREASE IN THE LEVEL OF CHROMOSOME ABERRATIONS IN MONKEY BONE MARROW CELLS DUE TO THE VIRUS INDICATES THE REAL VALUE OF THIS VIRUS IN INTENSIFYING THE MUTATION PROCESS IN SOMATIC TISSUES OF SENSITIVE TYPES. TWENTY MACACA RHESUS MONKEYS WERE INFECTED WITH HEMORRHAGIC FEVER VIRUS PASSAGED 21-24 TIMES IN MONKEYS. MONKEYS WERE INFECTED WITH BRAIN MATERIAL FROM SICK MONKEYS IN 1 ML AMOUNTS IN A TITER OF 10 PRIME3 ML (10 LETHAL DOSES) OR WITH MATERIAL CONSISTING OF 100 LETHAL DOSES. THE INCUBATION PERIOD OF THE DISEASE VARIED FROM 2-6 DAYS. FACILITY: INSTITUT EKSPERIMENTAL'NOY PATOLOGII I TERAPII, AMN SSSR, SUKHUMI.

UNCLASSIFIED

USSR

UDC 576.858.07

SHEVTSOVA, Z. V., and KRYLOVA, R. I., Institute of Experimental Pathology and Therapy, Academy of Medical Sciences USSR, Sukhumi

"Some Data on a Comparative Study of Two Virus Strains of Hemorrhagic Fever of Monkeys"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 71, pp 686-688

Abstract: Two virus strains -- the NIH and the Sukhumi -- produing hemorrhagic fever in monkeys were investigated by means of the complement fixation test and the neutralization test, and the clinical and morphological lesions induced by them in M. rhesus monkeys were compared. The two strains were indistinguishable in the complement fixation test. However, in neutralization tests in M. rhesus monkeys, either strain was neutralized only by the homologous serum. The clinical picture revealed that the strains are of a different virulence for monkeys, and furthermore the Sukhumi strain is able to produce severe diffuse encephalomyelitis. The findings indicate that the Sukhumi and NIH strains are not identical.

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UDC 575.576.858

MARKARYAN, D. S., SHEVTSOVA, Z. V., KUKSOVA, M. I., MACHAVARIANI, M. G., AVDZHIAN, M. V., Institute of Experimental Pathology and Therapy, Academy of Medical Sciences USSR, Sukhumi

"The Mutagenic Effect of Viruses. II. Cytogenetic Study of Monkey Hemmorrhagic Fever"

Moscow, Genetika, Vol 6, No 1, 1970, pp 144-150

Abstract: The cytogentic effects of monkey hemorrhagic fever virus were studied on experimentally infected Macaca rhesus monkeys. A decrease in mitotic activity and an increase in the number of dead and pathologically altered cells in the bone marrow of infected animals was observed. The number of chromosome aberrations in bone marrow cells and in peripheral blood leukocytes in culture increased. The aberration yield produced by concentrated virus-containing material was higher than that produced by the initial material. The virus of monkey hemorrhagic fever induced primarily aberrations of the chromatid type, which were similar to those that occurred in control animals as a result of spontaneous mutation.

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UDC 543.42:666.1/2

YEVSTROP'YEV, K. S., KRUPKIN, YU. S., GALIMOV, D. T., TARLAKOV, YU. P., SHEVYAKOV, A. M.

"On the Structural Features of R_2O - B_2O_2 - GeO_2 System Glasses from IR and EPR Spectroscopic Data"

Minsk, Zhurnal Prikladnoy Spektroskopii (Journal of Applied Spectroscopy), Vol 13, No 4, Oct 70, pp 655-661

Abstract: A UR-10 spectrograph was used to take ir spectra in the range of 1600 to 400 cm^{-1}. The glass samples, made of chemically pure materials, were heated to 800°C and pressed into potassium bromide. A Co^{60} gamma source of 10^4r/hr was used to irradiate the samples for the EPR tests. The dose was 2×10^6 roentgens at room temperature. The spectra were recorded with an RE 1301 radiospectrometer at 300°K.

Ir spectra of sodium glass samples with varying content (10, 20, and 30 mole %) of alkali oxide and of lithium and potassium boro-germanate glasses were taken. As the Na_2O content is increased,

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YEVSTROP'YEV, K. S., Zhurnal Prikladnoy Spektroskopii, Vol 13, No 4, Oct 70, pp 655-661

the spectral curves become simpler and the principal absorption band of Ge - O - Ge at 900 cm^{-1} progressively shifts in the long wave direction. This behavior holds also for Li_2O, Na_2O, and K_2O.

Introduction of boric anhydride into the sample greatly alters the nature of the spectra of alkali germanate glasses. The principal absorption band shifts toward the higher frequencies. The band at 1100 cm^{-1} attributed to BO_4 tetrahedra, increases in intensity. The deformation vibration band at 600 to 400 cm^{-1} decreases gradually and in borate glasses degenerates. The effect of the boric anhydride is the same for sodium, lithium, and potassium glasses.

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The shifting of the absorption bands and changes in intensity with variation in the composition and content of the glasses is related to changes in lattice structures in the samples.

Epr spectra excited by gamma radiation were taken for the same samples, and similar analyses and interpretations are made as for the ir spectra. Variation in the signals and their intensities as a function of the quantity of B_2O_3 correlates well with the results of the ir spectra.

It is concluded that there is a range of compositions of alkali borogermanate glasses in which part of the germanium exists in sixfold coordination (in the form of GeO_6 octahedra). The range expands as the concentration of the alkali oxide increases. For 10, 20, and 30 mole % of Na_2O, the limiting concentration of B_2O_3 is 10, 25, and 30 to 40 mole %. In potassium and lithium glasses the maximum is 30 to 40 mole % of B_2O_3.

Orig. article has 4 figures, 1 table, and 10 references.

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1/2 024 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--THE INFRARED SPECTROSCOPIC STUDY OF SOLID SOLUTIONS IN THE Y SUB2 SI SUB2 O SUB7-Y SUB2 GE SUB2 O SUB7 SYSTEM -U-

AUTHOR-(04)-SHEVYAKOV, A.M., TARLAKOV, YU.P., SOKOLOV, A.N., BURBA, A.A.

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